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Miscellaneous Notes and Descriptions of New Forms of Caecilians¹

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The following notes were prepared to be published as a supplement to my treatise on the caecilians of the world. This was found to be impractical so they are offered herewith.

In regard to the description of *Caecilia gracilis* and *Microcaecilia unicolor* in that work, one figure has been erroneously labeled and certain data omitted. The corrections are contained herein.

In addition, on a recent visit to the Berlin Museum, the type of *Osgaecilia polyzona* (Fischer), believed to have been lost, was found in a container under another name. Data are given on this specimen.

Finally, two new species and two new subspecies are described.

In the preparation of these notes, I placed myself under obligation to several persons. I offer my gratitude to the following: to Dr. George S. Myers for the loan of a specimen of *Osgaecilia ochrocephala*, var. and to its collector, Mr. John S. Applegarth; to Dr. Gaston Françoise de Witte of the Institut Royal des Sciences Naturelle de Belgique who arranged the loan of Congo materials; to Dr. J. Guibé for the loan of the *Ichthyophis laosensis* from the Museum National d'Histoire Naturelle, Paris; to Dr. Charles M. Bogert, American Museum of Natural History, for the loan of the Ceylon specimen; and to Dr. Günther Peters and Mr. Peter Buerton of the Berlin Museum for the opportunity to study the type of *Osgaecilia polyzona*.

Caecilia gracilis Shaw

In my *Caecilians of the World: A Taxonomic Review* (Taylor, 1968), due to a metathesis of data and plates, I have labeled Fig. 200, p. 384, "*Caecilia gracilis* Shaw, Field Museum of Natural History No. 35116, Arenoque, British Guiana." This is entirely erroneous. The specimen figured is actually

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Field Museum of Natural History No. 35117, *Microcaecilia unicolor* A. Duméril, from Oko River, Cuyoni River, British Guiana, Neal A. Weber collector, June, 1936.

The description of the species, p. 389, is actually taken from a specimen of *Caecilia gracilis* which bears the Field Museum of Natural History Museum No. 35116 from the Arenoque River, British Guiana, 2° 42' N Lat. "In a shovel of sand at water level."

On p. 391 of the description one finds: "*Measurements*: See Table." Owing to the original size of the Table, it was necessary to strike off a part of the data recorded for other specimens and inadvertently the data for the described specimen (No. 35116) was not included.

The following data apply to the specimen described: total length, 283 mm (body somewhat elastic); head width, 4 mm; body width, 4.2 mm; tentacle to eye, 1.9 mm; tentacle to nostril, 0.8 mm; first collar indistinct (because of abnormal swelling); second collar moderately distinct, fused ventrally with first primary fold; snout-tip to first nuchal groove, 5.1 mm; to second groove, 6.8 mm; to third groove, 8.6 mm (lateral measurements). Primary folds, 198± (difficult to count in certain parts); secondaries, 23, 7 complete; eye hidden under skin, but situated in a socket 1.9 mm from tentacle; nostril from tentacle, 0.8 mm; nostrils distinctly visible from directly above head; tentacle, not visible from above, is below nostril and vaguely in advance of nostril. Choanae relatively large, the diameter of one choana in the distance between them, 1 time.

Premaxillary-maxillary tooth series, 9-1-9; prevomeropalatine series, 9-1-9; dentary, 10-10, the anterior dentary teeth the largest in mouth; splenial, 2-2. Scales present in folds in a single row. These first appear near point where secondaries make their first appearance. Posteriorly there is still only a single row in each fold. These are large, subcircular overlapping scales. No subdermal scales found.

Osaecilia polyzona (Fischer)

Caecilia polyzona Fischer, in Peters, 1879, Monatsb. Akad. Wiss. Berlin, p. 936; Fischer, 1880, Arch. für Naturg. Jahrg. 46(1):215, pl. 8, figs. 1-4.

The two cotypes of this species, collected by Grosskopf at Cáceres, Antioquia, Colombia were originally in the Kön. Zool. Museums in Berlin. One of these was acquired by the American Museum of Natural History. The other specimen was presumed to be absent from the Berlin collection in 1929 and reported "whereabouts unknown."

In studying material in the Berlin Museum, now called Zoologisches Museum der Humboldt-Universität, I found the second cotype masquerading under another name, seemingly having been placed accidentally in a wrong container. Since I name this the lectotype, I present the following data on the specimen.

The specimen now bears the number 9524 and was collected by Grosskopf in Antioquia, Colombia. Fischer gave a more complete description in 1880 than that given in Peters' paper the preceding year.

The specimen is female and somewhat softened so that its present measurement of 712 mm (stretched to eliminate the sinuosity of the spine) is considerably larger than Fischer's measurements of 650 or 670 mm for the two cotypes.

Primary folds 210, and 15-16 secondaries with at least two complete. Collars both complete, each with a dorsal transverse groove. Eye solidly covered by bone. Aperture of tentacle relatively far from edge of lip; nostrils plainly visible from directly above head; choanae rather large, circular, the diameter of one in the distance separating them about 2 times; tongue with two well-developed narial plugs; a very small terminal "shield." Snout projects somewhat beyond mouth with a rather sharp transverse edge.

The tooth counts are: premaxillary-maxillary series, 6-1-6, anteriorly very large, diminishing somewhat laterally, teeth bent backwards; prevomeropalatine, 11-1-12; dentary, 11-11; splenial, 4-3.

These do not correspond exactly with tooth counts of Fischer. He states 22-25 teeth in the gums and, in a parallel row, about 20-22 in the lower jaw, first row; in the second, 10-12. All teeth bent back.

Of the secondaries, Fischer states that on the last 10 or 12 folds there are accessory rings inserted which first appear in the dorsolateral region, then on the sides and finally reach to the middle of the venter. His count of the primary folds is 209 and 207.

In the museum in Vienna there is a specimen of this species (No. 9141) from Cárceres, Antioquia, Colombia, collected by Grosskopf (in 1880?). This seemingly topotypic specimen was probably not seen by Fischer.

***Oscaecilia ochrocephala* var.**

(Fig. 1)

Thanks to the kindness of Dr. George Myers, I have examined a specimen of caecilian from the Canal Zone, Panamá, collected by Mr. John S. Applegarth which although having certain characters of *Oscaecilia ochrocephala* and occurring in an area where typical *O. ochrocephala* are to be found, differs markedly in several characters. While these differences are largely of size and markings, it is worth while to put the specimen on record.

The distribution of *O. ochrocephala* is rather limited, being confined, so far as known, to the State of Panamá and the Canal Zone. *Oscaecilia polyzona* is a closely related form, three specimens of which are known from Colombia. Other members of the genus are scattered, chiefly in the northern part of South America.

The specimen, Stanford University Division of Systematic Biology Museum, No. 21864, was collected just behind the Latin American School at the



FIG. 1. *Oscacilia ochrocephala* var. Stanford Museum, No. 21864, Albrook Air Force Base, Canal Zone, Panamá. Total length of specimen (before preservation), "62 cm"; present length, 520 mm. Lateral view.

Albrook Air Force Base on May 30, 1965 by John Applegarth (Fig. 1). The data associated with the specimen state, "60 cm in length before formalin."

The specimen is described as follows: head tapering, the snout oval seen from above, extending beyond the mouth 3.1 mm. Eyes under bone, not visible externally; nostrils well visible from directly above head; tentacle in a tiny depression almost directly below nostril, closer to it than to lip, and not visible from above head. First collar well defined, with a dorsal groove; first and second nuchal grooves visible ventrally, the first less distinct than second. Second collar relatively narrow, a transverse groove above, fused to the first primary ventrally. Primary folds, 181, complete above and below. Small

terminal shield, somewhat pinched or flattened; secondaries, 9, none complete ventrally. Vent small, transverse or subcircular. Denticulations small, about 7 anterior and 8 posterior to vent. A pair of small anal glands precede vent on denticles.

The dentition: premaxillary-maxillary teeth, 7-1-7; prevomeropalatine, 11-1-10; dentary, 10-10, the posterior 5 of series very small, the anterior ones the largest in mouth; splenials, 2-2. Tongue with two small narial plugs, choanae small. Maxillary tooth series reaches barely beyond level of choanae.

Scales present beginning at second sixth of body length, the scales at first very small, 0.1 to 0.5 mm in greatest width; in the last centimeter they vary between 1.6 to 2.0 mm in largest measurements. Many scales nearly quadrangular with a slight elevation near the center.

Total length now 520 mm (620 before preservation), the spine, now sinuous since preservation. Head width, greatest, 9.5 mm; width of body for most of its length, 15 mm; width one cm before terminus, 14.4 mm; snout tip to first groove, 11.3 mm (lateral measurements); to second groove, 14 mm; to third groove, 17 mm. Width in length, 34.6 (or 41) times.

Color of preserved specimen generally slate, the grooves very faintly darker. Venter and lower sides grayish with yellowish-gray spots and irregular flecks. Head much lighter slate than body, with two light lateral areas including lip and snout tip. Lower jaw yellowish; chin dark. Area about vent whitish.

Of the more than 100 specimens from which data have been taken, or on which data have been published, eight specimens are measured above 500 mm and, of these, only one measures above 600 mm (610 mm). The greatest body width recorded for these eight specimens is 12 mm for the 610 mm specimen; four have a measurement of 10 mm, one of 11 mm and one of 7 mm. The width-in-length ratio is smaller in this specimen than in all others.

The color generally is different from the usual specimens of *O. ochrocephala*, in which the folds have very definite black-barred primary grooves and the body is not mottled.

It is possible that other specimens having these characteristics are among the specimens reported in the literature. It is also quite possible that the skull may show still other differences.

Geotrypetes congoensis Taylor

(Figs. 2-3)

Geotrypetes congoensis Taylor, 1968, *Caecilians of the World: A Taxonomic Review*, pp. 715-718, figs. 392-393.

The accompanying Figs. 2-3 were prepared to amplify Fig. 393 of the cited work.

Characteristic scales of this species taken from the posterior dorsal part of the body are also shown here. The scales measure 1.7×1.2 and 1.7×1.0 mm.



FIG. 2. *Geotrypetes congoensis* Taylor. Musée Royal de l'Afrique Centrale, Belgium, No. 101464. Kitadi, Mayumbe Region, Kivu, Belgian Congo, Africa. Actual width of head at first nuchal groove, 5 mm. Type. Dorsal, lateral, and ventral views of head; dorsal and ventral views of terminal area.

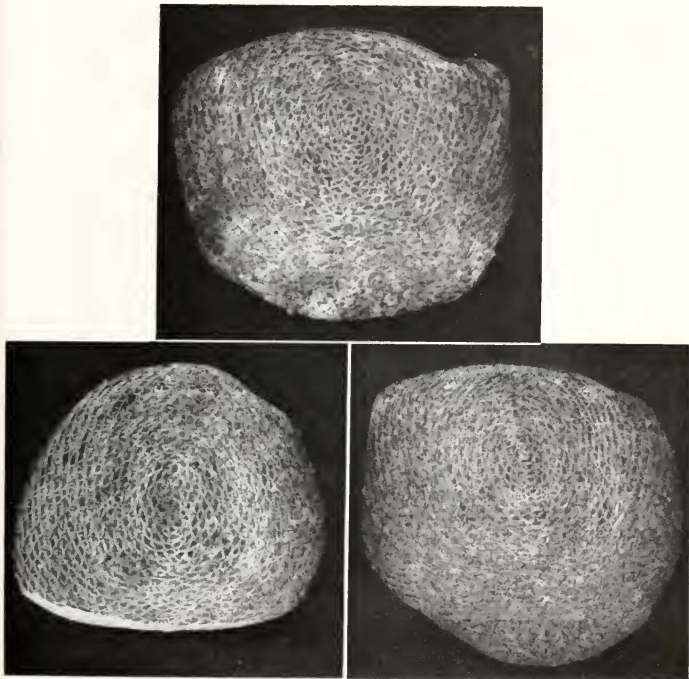


FIG. 3. *Geotrypetes congoensis* Taylor. Type. Scales from the folds of the last centimeter of body. Largest scale measures 1.7×1.2 mm.

In the posterior folds there are 6-7 rows of scales; the uppermost of the series may be smaller than those depicted here.

Hypogeophis rostratus lionneti* subsp. nov.

(Fig. 4)

TYPE. Nairobi National Museum, No. A-602, "Seychelles."

The various forms of *Hypogeophis* have been recognized as subspecies by Parker (1958). The specimen here described is placed in the same category. It differs as regards completeness of folds, and differs from the three other forms in having nearly twice the number of secondaries.

The specimen is relatively thick-bodied. It is a female, there being about 30 eggs in each ovary, which at least partly accounts for the width of the body.

* Named in honor of Mr. J. F. Guy Lionnet of the Department of Agriculture, Seychelles.

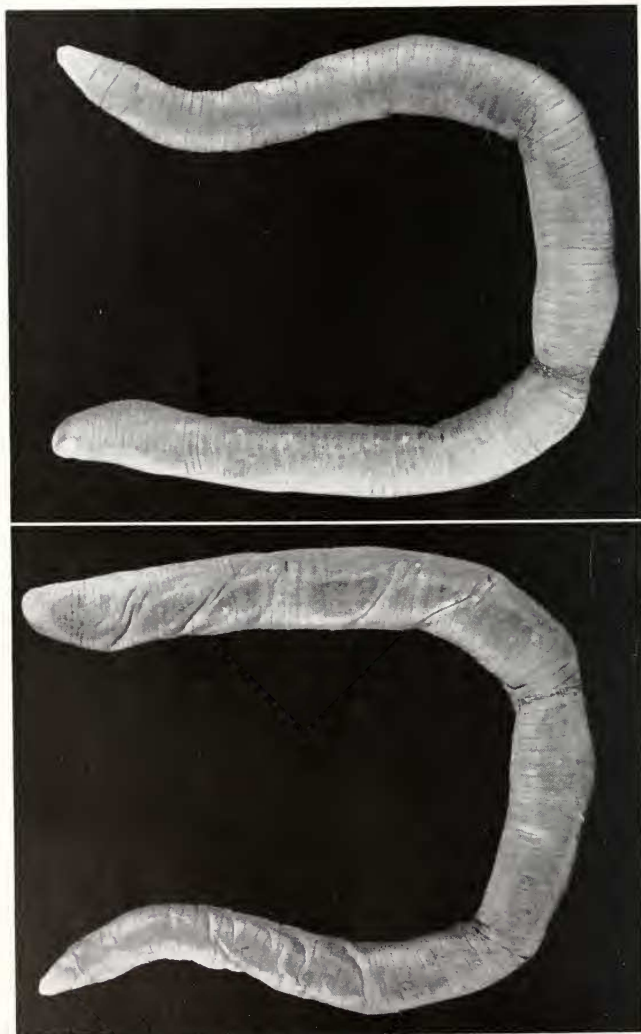


FIG. 4. *Hypogeophis rostratus lionneti* subsp. nov. Type. Nairobi National Museum (Coryndon Museum), No. A-602. Nairobi, Kenya, Africa. Total length, 252 mm.

DIAGNOSIS. A medium sized form, the known length 250 mm; primary folds, 103; secondary, 48. Scales begin about the 20th fold. Two scale rows in a fold at middle of body; 4-5 rows in folds of posterior areas. Splenial teeth, 3-3.

DESCRIPTION. A relatively short plump caecilian. Head nearly triangular. The eye in a socket, forming a slight elevation externally; snout projecting beyond mouth 1.85 mm; tentacular aperture to eye, 2.9 mm, to nostril, 1.2 mm; eye to eye, 4.5 mm. Nostrils not visible from directly above head.

The two collars complete except second fused with first primary ventrally for a short distance; each collar with a transverse groove dorsally.

Primary folds, 102 about body; secondaries, 48, 6 complete. A few scales begin at about 20th fold dorsally. At the middle there are two continuous rows. Posteriorly there are 4-5 scale rows in each fold, the grooves relatively shallow and scales variable in size. The 11 first folds are complete as are the last 6-7. Those in between narrowly incomplete for most part.

Dentition. Premaxillary-maxillary tooth series, 20-1-20; prevomeropalatine, 21-1-22, of which 7-1-7 are prevomerine; dentary, 15-15; splenial, 3-3. The splenials relatively large on nearly same level as dentary teeth. Palate domed. The choanae separated by a distance equal to 2.2 times the diameter of one choana; the tongue has two well-developed narial plugs. The vomeropalatine teeth pass very close to choanae. The circular vent area relatively large, the denticles surrounding it much elongated and subequal. The terminus with a small unsegmented "shield."

Color. Lavender to violet with a distinctly lighter ventral shade; head grayish, growing lavender on occiput. Jaws and chin a very light shade of lavender. A cream spot at vent and slightly lighter areas about eye, nostril, and tentacle.

Measurements in mm. Total length, 252; head width, 7.7; body width at middle, 12.5; snout tip to first groove, 7.8; to second, 10; to third, 13.1. Width in length, about 20 times.

REMARKS. The considerable increase in the number of secondaries (nearly double the number in the three known subspecies) indicates a fourth subspecies. Unfortunately no exact locality is known. The specimen has been on exhibition at the Coryndon Museum and bears only the label "Seychelles." No record could be found as to where or when it was acquired.

KEY TO SUBSPECIES OF *Hypogeophis rostratus* (Cuvier)

- | | |
|---|---|
| 1. Secondaries less than 30 | 2 |
| Secondaries, 48; primaries, 102; reaching a known length of 252 mm. "Seychelles Islands" | <i>Hypogeophis rostratus lionneti</i> subsp. nov. |
| 2. Fewer vertebrae (less than 105) | 3 |
| More vertebrae (above 105, mean 109.3). Reaching a known length of 295 mm; primaries, 99-104; secondaries, 5-26. (No free-living aquatic stage.) Praslin and Curieuse Islands | <i>Hypogeophis rostratus praslini</i> |

3. Range of vertebrae, 97-102 (mean 100.2). Reaching a length of 270 mm; secondaries, 17. Practically all primary folds complete. Frigate Island *Hypogeophis rostratus guentheri*
 Range of vertebrae, 100-107 (mean 104.9); primaries, 96-100; mostly complete; secondaries, 4-20. Reaching a known length of 365 mm. Mahé and Silhouette Islands *Hypogeophis rostratus rostratus*

Ichthyophis taprobanicensis sp. nov.

(Figs. 5-6)

TYPE. American Museum of Natural History, No. 64515, Ohiya Area, Ceylon, 5500 ft. elev. PARATYPES. Naturhistorischen Museum Wien, No. 9109, Ceylon; American Museum of Natural History, No. 64541, Ceylon.

DIAGNOSIS. A short-tailed species, the longest specimen known, 260 mm; tail length in total length, 37-48 times; width in length, 22-24 times. Total body folds, 291-296, 8-10 confined to tail, ventrally angled anteriorly. Vent longitudinal. Scales begin on collars with 5-7 rows throughout most of body; splenial teeth, 10-10, to 12-12; no lateral light stripe.

DESCRIPTION OF TYPE. Head somewhat acuminate; eyes small and distinct; the distance between eyes, 5.2 mm; the distance from anterior eye level to snout tip, 4.9 mm; aperture of tentacle 1.7 mm from edge of eye; from nostril, 3.2 mm. Aperture of tentacle in an oval depression partly surrounded by a groove and a vague ridge reaching very close to lip edge. Nostril longer than wide, directed upwards, plainly visible from a point directly above head. Occipital region somewhat elevated.

First and second collars distinctly marked below and on sides but fused dorsally; second collar has two dorsal folds and on ventral surface fused to first primary for a short distance. Following the collars there are 291 folds (dorsal count), 284 folds (ventral count). Vent is longitudinal, with 7 denticulations on each side, interrupting three caudal folds. There are 8 caudal folds confined to tail. The latter compressed, ending in a blunt point. Terminal "shield" very small (1.5 mm long).

Folds are complete above and below, except for a few immediately following second collar, and they form a distinct angle throughout most of body along mid-ventral line. Preceding the vent, folds cross venter in straight line, and the ventral grooves, dim or absent on much of ventral surface, here are distinct.

Scales begin at second collar, there being 2 or 3 rows present at least dorsally. At middle of body the number of rows is 5 and in most of latter half of body 7 or 8 rows are present, the scales moderately large. Total number of scale rows on body dorsally estimated at about 1500.

Dentition. Four series of teeth present: premaxillary-maxillary series, 21-1-22, premaxillaries smaller than maxillaries; prevomeropalatine, 20-1-21, prevomerine teeth larger than premaxillaries, and bent nearly straight back or



FIG. 5. *Ichthyophis taprobanicensis* sp. nov. Type. American Museum of Natural History, No. 64515. Ceylon (5500 ft. elevation). Actual length, 2600 mm. Dorsal, ventral, and lateral views of head; dorsal and ventral views of the terminus of body.

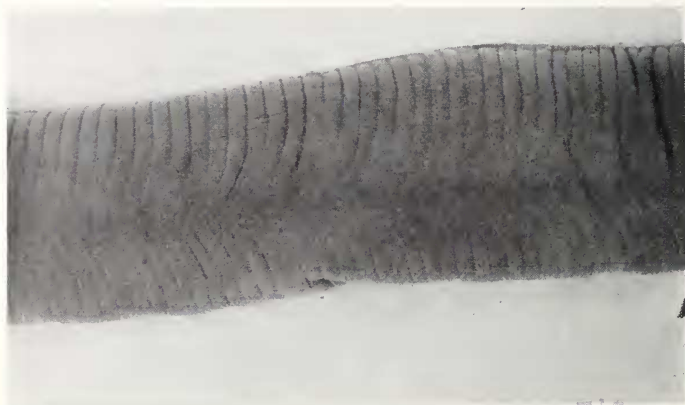


FIG. 6. *Ichthyophis taprobanicensis* sp. nov. Type. Ventral section of body, from near middle, showing the angled body folds. Actual body width, 11 mm.

mesially; dentaries, 19-20, the posterior teeth reduced in size; splenial teeth, 11-12. Choanae elongate, bordered on inner edge with slight angular ridge, the greatest transverse diameter of a choana is contained in distance between choanae about 4.5 times.

Color. Dorsally and laterally grayish lavender. Venter several shades lighter, this color appearing on sides; an area about vent and tip of snout whitish.

Measurements in mm. Total length, 260; tail length, 7; body width, 11; head width, 10; snout tip to first nuchal groove, 11; to second groove, 14; to third groove, 17.2 (measured laterally). Body width in length, 23.6 times; tail length in total length, 37 times.

REMARKS. *Ichthyophis orthoplicatus* has been described from Ceylon. This species differs from *taprobanicensis* in lacking the angle on the ventral part of most folds. It is presumed that *I. orthoplicatus* is a lowland form.

Ichthyophis laosensis sp. nov.

(Figs. 7-9)

TYPE. Museum National d'Histoire Naturelle, Paris, No. 1928 * 95. Specimen from "Haut Laos."

DIAGNOSIS. Specimen without lateral stripe, almost uniformly fawn colored with very little color difference between dorsum and venter. Eye in a socket not continuous with tentacular aperture. Collars not distinct above, the second with two posterior folds. Transverse folds, 346 (dorsal count), 345 (ventral count). Tail extremely short with only 5 folds, 2 interrupted by vent.

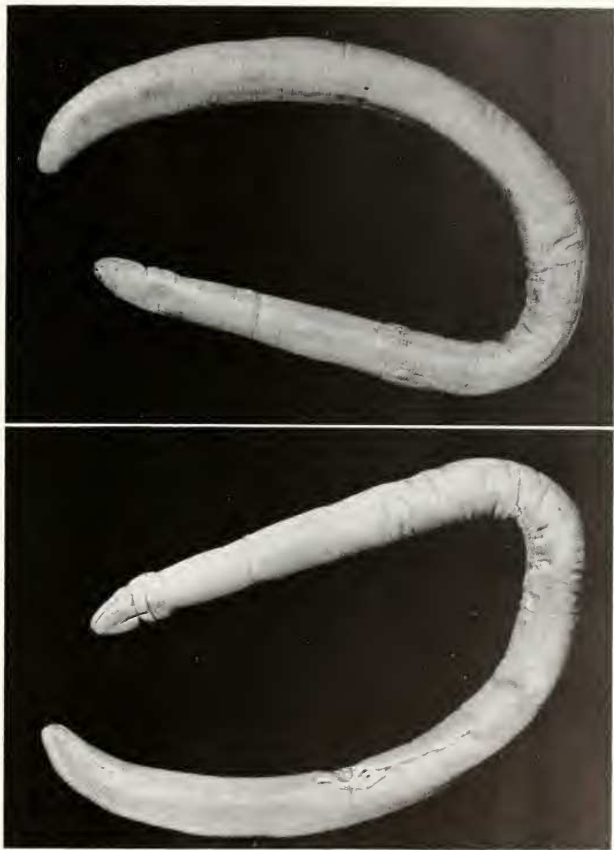


FIG. 7. *Ichthyophis laosensis* sp. nov. Type. Muséum National d'Histoire Naturelle, Paris, No. 1928 * 95. From "Haut Laos," Asia. Total length, 318 mm.

Scales present, beginning on collars; posteriorly, three rows in each fold. Splenial teeth 16-16.

DESCRIPTION OF TYPE. Head moderate, not quite as wide as collars, eye very distinct; tentacle 1.6 mm from eye, 4.2 mm from nostril which is barely visible from directly above head; distance between eyes, 6.2 mm; from anterior eye level to tip of snout, 5.1 mm; snout tip to mouth angle, 9.5 mm.

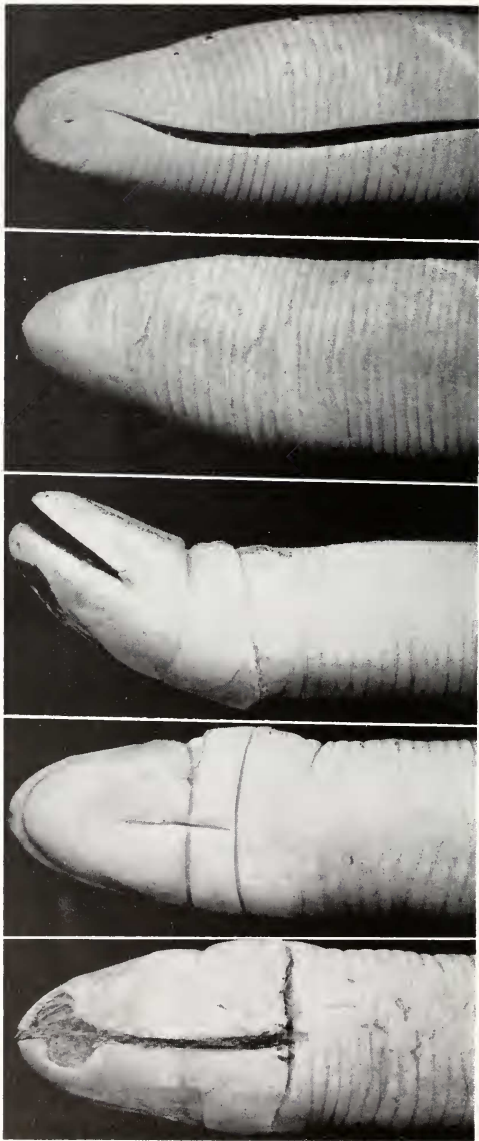


FIG. 8. *Ichthyophis laosensis* sp. nov. Type. Dorsal, ventral and lateral views of head; dorsal and ventral views of body terminus. Head width, 12 mm.

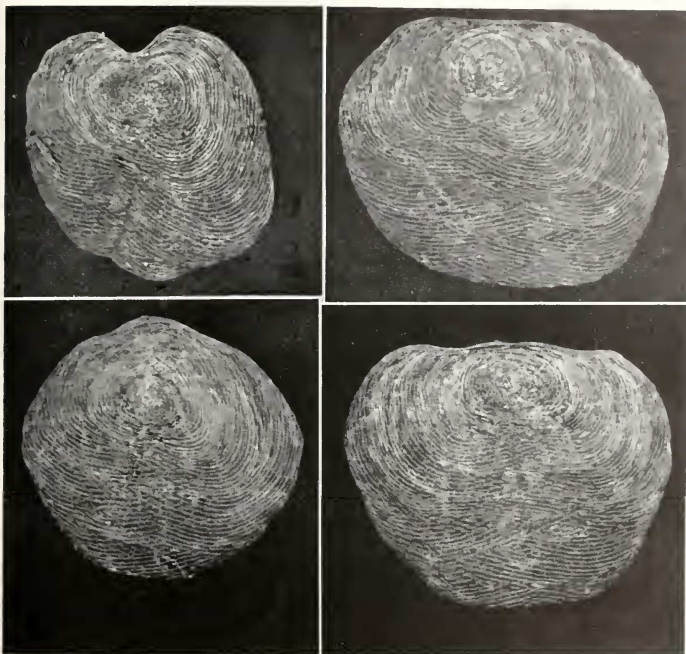


FIG. 9. *Ichthyophis laosensis* sp. nov. Type. Scales from the posterior part of the body: left, ventral; right, dorsal. Largest scale measures 2.0×1.5 mm.

Two collars following the occiput. First nuchal groove encircles neck, the second, while well developed ventrally, does not cross neck above; the two collars fused together above. Third nuchal groove is more or less visible above, but does not cross throat; the second collar, fused to first primary fold, bears two transverse folds on its posterior dorsal part.

Following the collars there are 346 transverse folds or annuli (dorsal count) and 345 folds (ventral count). Grooves separating folds are complete above but ventrally do not cross venter except posteriorly. However, if venter is examined under a lens, the folds themselves are complete and form a backward-pointing angle except in posterior part preceding vent where grooves and folds pass straight across venter. Tail extremely short, the vent small, longitudinal, with 6-7 fleshy denticulations on each side. Tail with 5 folds, 2 interrupted by vent. Total tail length from front of vent, 4 mm. Scales begin

on collars and at middle of body there are 2 irregular rows in each fold, increasing to 3 in posterior part of body.

Dentition. Four dental series. Premaxillary-maxillary teeth, 21-1-21, all about same size; prevomeropalatine series, 21-1-22, prevomerine teeth longer and curved back more than palatines; dentary teeth, 20-20, these slightly larger than maxillaries; splenials, 16-16, equally as large as prevomerine teeth. Tongue narrowed much anteriorly; choanae elongate, vaguely angulate, bordered posteriorly by narrow ridge separating choanal cavity from large palatal opening (filled with muscle) just behind it.

Color. Uniform fawn or clay-color, both above and below; no apparent whitish marks at eye, tentacle, nostril or vent. No evidence of lateral stripe.

Measurements in mm. Total length, 318; tail length, 4; width of head, 12; width of body, 13; snout tip to 1st groove, 12, to 2nd groove, 16.5, to 3rd groove, 22. Width of body in total length, 24.4 times; tail length in total length, 79.5 times.

Variation. Only the type is known. It may be related to *Ichthyophis acuminatus* but the head seems to be shaped differently and the dentition is reduced in all of the series. The color is essentially different.

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